Aggressive B-cell Lymphoma
Diagnostic Algorithm

Morphology: diffuse large B-cell lymphoma (DLBCL), high grade B-cell lymphoma (HGBCL), or Burkitt lymphoma

BLYMF / B-Cell Lymphoma, FISH, Tissue
MYC break-apart FISH probe (BAP) and IGH/MYC dual fusion FISH (D-FISH) probe

Positive for MYC rearrangement and negative for IGH/MYC fusion
FISH: BCL2 and BCL6 BAP, IGK/MYC, IGL/MYC D-FISH

Negative for BCL2 and BCL6 rearrangements
Morphology: DLBCL vs HGBCL vs Burkitt lymphoma

Positive for BCL2 and/or BCL6 rearrangements
High-grade B-cell lymphoma, with MYC and BCL2 and/or BCL6 rearrangements

Cell of origin (COO) immunohistochemistry (IHC) (CD10, BCL6, MUM1) and double expresser IHC (BCL2 and MYC)

HGBCL vs Burkitt lymphoma

DLBCL

IHC: CD10, CD43, BCL2, BCL6, MUM1, MYC

COO IHC (CD10, BCL6, MUM1) and double expresser IHC (BCL2 and MYC)

CD10+, CD43+, BCL6+, MUM1–, MYC+, BCL2–

Probably Burkitt lymphoma, confirm with morphology and clinical

HGBCL, not otherwise specified

Any other phenotype

BCL2+ and MYC+

BCL6 Double expresser

Not a double expresser

All others

MUM1

Non-germinal center B-cell phenotype

BCL2+ and MYC+

Non-germinal center B-cell phenotype

POSITIVE NEGATIVE

POSITIVE NEGATIVE

POSITIVE NEGATIVE

BCL6

Double expresser

Not a double expresser

All others

MUM1

Non-germinal center B-cell phenotype

BCL2+ and MYC+

Non-germinal center B-cell phenotype

Germinal center B-cell phenotype

Germinal center B-cell phenotype

Burkitt lymphoma likely excluded, however:
- Consider CMA/CT / Chromosomal Microarray, Tumor, Formalin-Fixed Paraffin-Embedd for 11q23 aberrancy and 11q24-ter deletion
- Consider D-FISH for IGK / MYC and IGL/MYC to exclude a MYC rearrangement completely, especially in a pediatric patient

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